

**Claims:**

- 1 1. A system for manufacturing a hard disk drive head slider comprising:
  - 2 an edge blending jig of an edge blending assembly to bond to a number of head sliders
  - 3 for edge blending, said edge blending by lapping tape, wherein
  - 4 said edge blending jig is configured to receive a portion of lapping tape between each of a
  - 5 number of said sliders;
  - 6 said edge blending jig is configured to allow said lapping tape to partially wrap an edge
  - 7 of each slider; and
  - 8 said edge blending is performed by relative movement between said sliders and said
  - 9 lapping tape.
- 1 2. The system of claim 1, wherein said edge blending is by directional oscillation of said
  - 2 sliders with respect to said lapping tape.
- 1 3. The system of claim 2, wherein said oscillation of the sliders is at a frequency of at least
  - 2 1 cycle per second.
- 1 4. The system of claim 2, wherein said oscillation of the sliders is at an amplitude of at least
  - 2 10 millimeters.
- 1 5. The system of claim 2, wherein said slider oscillation is performed with a first angle ( $\alpha$ )
  - 2 between a first face of the slider and the lapping tape and with a second angle ( $\beta$ ) between a

3 second face of the slider and the lapping tape, said first angle and said second angle each being  
4 between 3 degrees and 90 degrees.

1 6. The system of claim 2, wherein said slider oscillation is performed with a portion of  
2 lapping tape partially wrapped around an edge of each slider under a tension force of at least 0.05  
3 kilograms.

1 7. The system of claim 2, wherein said edge blending is performed with said sliders and said  
2 lapping tape submerged in a lubricant.

1 8. The system of claim 2, wherein said lapping tape has a lapping surface covered with an  
2 inorganic powder.

1 9. The system of claim 8, wherein said inorganic powder is diamond powder.

1 10. The system of claim 8, wherein said powder has a grade between 0.1 microns and 3.0  
2 microns.

1 11. The system of claim 2, wherein said lapping tape has a thickness between 40 microns and  
2 100 microns.

1 12. The system of claim 2, wherein said lapping tape is greater than 1.2 millimeters in width.

- 1 13. The system of claim 2, wherein a slider row bar is to be bonded to said edge blending jig,  
2 said row bar to be separated into individual head sliders upon the edge blending jig.
- 1 14. The system of claim 13, wherein said row bar is to be separated into individual sliders by  
2 a diamond cutting wheel.
- 1 15. The system of claim 2, wherein for a slider cleaning process said lapping tape is a rubber  
2 tape and said oscillation is performed with said sliders and said rubber tape submerged in a  
3 cleaning solution.
- 1 16. The system of claim 15, wherein said cleaning process is performed for at least 30  
2 seconds.
- 1 17. The system of claim 2, wherein said lapping tape is a rubber tape and said oscillation is  
2 performed with said sliders and said rubber tape submerged in a diamond slurry.
- 1 18. A method for manufacturing a hard disk drive head slider comprising:  
2 inserting lapping tape between each of a number of head sliders bonded to a edge  
3 blending jig of an edge blending assembly;  
4 adjusting said edge blending assembly to cause the lapping tape to partially wrap an edge  
5 of each slider; and  
6 edge blending said head sliders by relative movement between said sliders and said  
7 lapping tape.

- 1 19. The method of claim 18, wherein said edge blending is by directional oscillation of said  
2 sliders with respect to said lapping tape.
- 1 20. The method of claim 19, wherein said oscillation of the sliders is at a frequency of at least  
2 1 cycle per second and an amplitude of at least 10 millimeters.
- 1 21. The method of claim 19, wherein said slider oscillation is performed with a first angle ( $\alpha$ )  
2 between a first face of the slider and the lapping tape and with a second angle ( $\beta$ ) between a  
3 second face of the slider and the lapping tape, said first angle and said second angle each being  
4 between 3 degrees and 90 degrees.
- 1 22. The method of claim 19, wherein said slider oscillation is performed with a portion of  
2 lapping tape partially wrapped around an edge of each slider under a tension force of at least 0.05  
3 kilograms.
- 1 23. The method of claim 19, wherein said edge blending is performed with said sliders and  
2 said lapping tape submerged in a lubricant.
- 1 24. The method of claim 19, wherein said lapping tape has a lapping surface covered with a  
2 diamond powder having a grade between 0.1 microns and 3.0 microns.
- 1 25. The method of claim 19, wherein said lapping tape has a thickness between 40 microns  
2 and 100 microns.

1 26. The method of claim 19, further comprising:

2 bonding a head slider row bar to said edge blending jig; and

3 separating said row bar into said number of head sliders.

1 27. The method of claim 26, wherein said separating said row bar is performed by a slider

2 parting tool.

1 28. The method of claim 19, wherein for a slider cleaning process said lapping tape is a

2 rubber tape and said oscillation is performed with said sliders and said rubber tape submerged in

3 a cleaning solution.

1 29. The method of claim 28, wherein said cleaning process is performed for at least 30

2 seconds.

1 30. The method of claim 19, wherein said lapping tape is a rubber tape and said oscillation is

2 performed with said sliders and said rubber tape submerged in a diamond slurry.

1 31. A method for manufacturing a hard disk drive head slider comprising:

2 bonding a head slider row bar to a edge blending jig of an edge blending assembly;

3 separating upon the edge blending jig the row bar into a number of head sliders;

4 inserting lapping tape between each slider on the edge blending jig;

5 adjusting said edge blending assembly to cause the lapping tape to partially wrap an-edge

6 of each slider; and

7 edge blending said head sliders by motion oscillation of said sliders with respect to said

8 lapping tape.